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99-199



December 8, 1999

Mr. Dale Hatfield  
Chief – Office of Engineering and Technology  
Federal Communications Commission  
445 12th Street, SW  
Room 7-C155  
Washington, DC 20554

**Re: Final Service Outage Report**

Dear Mr. Hatfield:

In accordance with the requirements in CC Docket 91-273, enclosed is the Final Service Disruption Report for the Bell Atlantic service outage that occurred on November 8, 1999 affecting the city of Cambridge, Massachusetts.

Please call me if you have any questions about this report or other service outage issues.

Sincerely,

A handwritten signature in cursive script, reading "Fran Folgner".

Enclosure

cc: R. Kimball

**BELL ATLANTIC – MASSACHUSETTS**  
**FCC NETWORK DISRUPTION**  
**FINAL SERVICE DISRUPTION REPORT**

This Final Service Disruption Report is filed by Bell Atlantic on behalf of its telephone operating company, Bell Atlantic-MA (BA-MA), in accordance with Section 63.100 of the Commission's Rules in the Second Report and Order in CC Docket 91-273, 9 FCC Rcd 3911 (1994), as revised by the Order on Reconsideration, released October 30, 1995, 10 FCC Rcd 11764 (1995). Bell Atlantic filed an Initial Report on November 8, 1999 notifying the Commission of an outage that occurred on that day affecting the city of Cambridge in Massachusetts.

On November 8, 1999 at 12:03AM an Equipment Installation Department (EI) installer was mounting ground strips to a new Integrated Ring Node (IRN2) in the Ring Node cabinet in the Cambridge Ware St. 5ESS (CMBRMAWADS2) Central Office. During the installation the Common Network Interface (CNI) ring failed into simplex operation, making Ring Peripheral Controller Node 00 (RPCN 00) active. The Network Operations Center (NOC) technician received the initial alarms but incorrectly interpreted them as part of the planned activity. The installation and surveillance technicians failed to communicate properly both the frame status and the status of the installation procedure. The installer was fastening the ground strip with a screw when the screw dislodged from the holding screwdriver. The screw bounced off the protective covering over the Ring Node shelf (RPCN 00) onto the floor, and ricocheted under the protective covering into the RPCN 00. The 410AA power ring units tripped and powered down, resulting in a Common Network Interface (CNI) duplex failure that isolated Cambridge Ware St. from the Common Channel Signaling (CCS7) network.

At 12:10 AM, various Bell Atlantic technical support groups were contacted for assistance. A software boot failed to reinitialize the CNI ring. At 12:29 AM Lucent Customer Technical Support (CTS) instructed on-site personnel to turn up both power ring units. After setting the correct parameters, the Administrative Module (AM) was initialized and the CNI Ring was reconfigured. CCS7 call processing was restored at 12:58 A.M.

**Date of Incident:**

Monday, November 8, 1999

**Time of Incident:**

12:03 AM

**Duration of Outage:**

55 Minutes 46 seconds

**Geographic Area Affected:**

Eastern Massachusetts

**Estimated Number of Customers Affected:**

This outage potentially affected 105,000 access lines.

**Type of Services Affected:**

All interoffice switched traffic –intraLATA and interLATA—was affected during this incident

**Estimated Number of Blocked Calls:**

Bell Atlantic estimates this disruption blocked approximately 4,800 calls based on historical data. Both 911 and intraoffice service were unaffected

**Cause of the Incident, Including Name and Type of Equipment Involved and Specific Part(s) of the Network Affected:**

**Root Cause Analysis:**

Direct Cause: A Bell Atlantic procedural error during CNI growth activity caused this outage.

Affected Element: CNI ring and the CCS7 capability of the switch.

Outage Cause: A screw fell into the working Ring Peripheral Controller 00 shelf.

Duration Cause: The Ring Node reconfiguration took 20 minutes to initiate.

**Root Cause Finding:**

This outage occurred because of human error. On-site personnel did not respond appropriately to local alarms.

**Methods Used to Restore Service:**

At Lucent CTS' direction, on-site personnel manually powered up the power units and reinitialized the CNI ring.

### **Current or Proposed Company Practices Related to this Outage:**

Bell Atlantic documentation E.I. IP-72201 / Lucent Technologies Handbook (SIG-C-WU-100), Section 2013 "Common Network Interface 56 KBPS IRN2 Based Link Node Growth." for equipment installation applies to this outage. In accordance with company practice, this work operation was being performed during "safe time." Additionally, Bell Atlantic requires the use of the company's installation guidelines and procedures.

### **Network Reliability Council "Best Practices" That Relate To This Incident:**

The following "Best Practice" recommended by the Network Reliability Council in their report "Network Reliability: A Report to the Nation," applies to this outage: Section E, Paragraph 6.8.2.2, Installation/Removal Work, relating to method of procedure and installation guidelines. A second "Best Practice" is found in Section E, Paragraph 6.6.3, "Each company must have an alarm strategy that ensures that power problems are promptly identified and efficiently addressed... Initial provisioning, ongoing maintenance and alarm response must be integrated."

### **Describe How The NRC Recommendation(s) Could Have Prevented This Outage:**

If local alarms had not been misinterpreted, the outage would not have occurred.

### **Steps Taken to Prevent Recurrence:**

1. Appropriate alarms will be reviewed with the technicians.
2. Bell Atlantic has suggested several changes to Lucent Technologies' Handbook to strengthen their documentation and improve procedures for removing equipped and in-service SS7 links.
3. Bell Atlantic has issued a complaint to Lucent Technologies about the ground strip design used in the Ring Node Cabinet. Bell Atlantic is requesting a new design of Ring Node equipment.
4. Bell Atlantic recommended to Lucent that grooved slots be used to slide the strip into position.